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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/553,137	04/19/2000	Harold R. Blomquist	TRW(VSSIM)4419	3913

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EXAMINER
MILLER, EDWARD A

ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n N .	Applicant(s)
	09/553,137	BLOMQUIST, HAROLD R.
	Examiner	Art Unit
	Edward A. Miller	3641

-- *The MAILING DATE of this communication appears on th cover sheet with th correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-20,22,24-30,35 and 36* is/are pending in the application.

4a) Of the above claim(s) *14-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20,22,24-30,35 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. The current amendment to specification page 5, line 3, is of improper form since the portion that is required to show the changes, e.g., insertions and deletions with underlining and brackets, shows no such changes. Thus, the amendment is improper as not changing anything and being unnecessary, or for not being of proper form. The change has, none-the-less, been entered in this instance. In the future, applicant is at risk of receiving a notice of improper, non-responsive amendment, which after final does not entail any new time for reply, 37 CFR 1.135(b, c).

3. Claims 20,. 22, 24-30, 35 and 36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This is a lack of proper description situation. The improvements made to date are appreciated. While the change to delete "block" is deemed per se okay, it has not been carried out uniformly throughout, whereby the specification remains not only incorrect, but also inconsistent. Further, "segments" appears to be a residue of the block language.

The nature of the polymer in the invention is critical or essential to the practice of the invention, but it is neither included in the claim(s) nor enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Note Stewart et al. 5,552,257 at col. 2, lines 45-49, where GAP is a polymer, but that a block copolymer must be derived from at least two different monomers. Similarly, Manser 4,393,199 teaches at col. 5, line 6 - col. 6, line 29, e.g., the reaction to form block copolymers, particularly in col. 1, and that such is distinctly a different thing than reaction of hydroxyl terminal groups with an isocyanate to produce a polyurethane. Further, Ryder

5,847,311 and Manser et al. 5,210,153, both cited by applicant, further teach correct polymer details and language, which teachings are distinctly different from applicant's usage, and in agreement with the examiner's cited references. Newly cited Finck et al. '171 at col. 1, line 55-col. 2, line 8 teach further on the question of polymers. Looking to the therein cited Wardle 4,806,613, further teachings regarding thermoplastic elastomers are set forth in the paragraph bridging col. 1-2. Note specifically col. 1, line 67-col. 2, line 15, e.g., which relates to crystalline blocks forming physical cross-links with amorphous blocks. However, this lacks support for applicant. As set forth thereafter at col. 2, lines 25-68, A blocks may be reacted with B blocks via isocyanate linkages. This is not what applicant apparently does. Even applicant's cited, but lacking a form 1449, Holden et al., Thermoplastic Elastomers, 2nd Ed," at pages 25-26 support the examiner. There, the use of the term "segment" is set forth for the various parts of the block copolymer. There, at 2.4.1, starting with the second line thereof, "Hard segments which are formed by linear glycols and MDI would be expected to be crystalline." Further, such an oligomer with isocyanate termination would properly constitute both a block, and a diisocyanate of the complex sort. This then contrasts with the soft segments taught on page 18 thereof, at part 2.2.1 and following. Certainly, in a block situation, a polyether oligomer such as hydroxy terminated poly glycidyl azide might be soft or amorphous, contrasted with a hard block. However, the materials originally described as hard blocks by applicant are not properly so designated.

As to applicant's argued definitions, it is not clear to what extent a generic text or dictionary would control over the specific teachings in the art. Further, basis in the specification which is congruent to the definitions relied upon is not clear, or at least not pointed out. However, considering the references overall as set forth above, as well as in Hawley, 9th edition, shows that applicant's arguments remain incorrect and not persuasive. Indeed, the further definitions for

polymer and polyurethane, for example, show that applicant has misused language throughout the application regarding polymer details. Indeed, GAP may itself be in the form of a secondary alcohol, as in Manzara et al., unless special steps are taken to form the terminal reactive groups as primary hydroxyl groups, for example at col. 2, lines 23-46, as to the base polymer from which GAP is made. Thus, to recite a secondary alcohol with only one example in a chemical case, is to deprive the person of ordinary skill in the art of what is required to be effective, as to what m.w. alcohols are contemplated for this, whether both (or how many for alcohols with plural hydroxyl groups) alcohol groups are contemplated as secondary or only one such group, etc. Applicants changes to the claims to eliminate the term secondary alcohol therefrom are noted, but this does not affect that the specification informs the meanings of the claim terms. Here, it is noted that although claim 20 now does not include secondary alcohol now, claim 30 still includes this term.

Thus, throughout the specification and claims, incorrect language or terminology is used to such an extent that the ordinary artisan is not taught what the invention is, or how to practice it. To refer to toluene (or other aromatic portion of a diisocyanate) diisocyanate as a block is entirely wrong. As to this issue, note the instant amendment to specification page 3, as found at the top of the instant amendment, page 2. There, the language, beyond repeating polyurethane, the last word of page 1 and the first word of page 2, refers to a "copolymer" of an "aromatic diisocyanate and a linear ... polymer...." From the teachings above, as set forth in Finck et al. at col. 1, a linear polymer reacted with an aromatic isocyanate may not per se form a thermoplastic elastomer. There is some question about what the various terms as used in the art mean, but it does not appear that applicant has described anything in the specification that would necessarily describe a thermoplastic elastomer, as opposed to any other polyurethane. This is particularly as set forth in the claims, that there is nothing recited in any specific detail in the claims to exclude the teachings as applied in the

prior art from the prior art rejection. Likewise, to refer to the isocyanate residue of any simple diisocyanate as a block or segment, as on pages 3 (the instant amendment), 10 and 12 of the specification, just for example, which is a "thermoplastic" block or polymer, is contrary to ordinary terms of art. In the language in the amendatory paragraph on page 3, one polymer plus a diisocyanate does not describe a linear "copolymer"; this language is just wrong. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947).

The idea of physical crosslinking is also not correctly conveyed to the person of ordinary skill in the art. A single moiety is, by definition, not a poly or block or oligomer entity, it is a monomer. What does this refer to? Compare Johnson et al. '482, col. 2 generally, and lines 42-46. Compare this usage with polyurethane, the elastomer part thereof, in Hawley. The difference between what applicant does and what Hawley teaches occurs for all polyurethane elastomers is not clear, and is certainly not a basis for perverting ordinary art understood language. It is not clear what appellants do to allegedly obtain hydrogen bonding, which does not occur with any polyurethane. As argued, all polyurethanes have urethane units and also have oxygen. Per the specification, hydrogen bonding occurs. However, there are hydrogen atoms throughout any polyurethane, and it is not clear how the alleged hydrogen bonding is manifest, compared to any other polyurethane. Does hydrogen bond to unsaturation? Does hydrogen bond to nitrogen, in azide, e.g., and if so, what is the basis therefore? Could the alleged physical crosslink of hydrogen bonding, which ostensibly allows melt reprocessing, instead be from mere melting? All of the polymer terms lack proper disclosure basis. The specification allegations do not correspond to the prior art teachings where crystalline and amorphous blocks may lead to physical cross links. Further, assuming arguendo that the Kirk-Othmer teaching is correct and applies to the instant situation, to refer to

this at this time, without any original basis in the specification being properly pointed out, is to add further new matter to the application, e.g., teachings that were not originally set forth. It is not clear that the specification as originally filed, provided proper support for the alleged invention. Further, in claim 20 as amended, for example, the polymer language has been expanded from the original language of claim 1, to encompass any polyurethane, which also lacks proper disclosure basis, as the specification as originally filed clearly was limited to certain polyurethanes. These remain exemplary.

Applicant challenges the examiner to point out remaining instances of "block" in the specification. Although this is the duty of applicant, to review the specification and claims, applicant should note page 10, line 14. Beyond this, any proper word processing program has a "Find" function, whereby applicant can search his own digital word processing files to locate this and any other instances thereof. Also, the terms "segment" or "segments" may likewise be found in a similar manner. Portions of the specification are proper and clear without resort to such terminology, and the balance should be conformed to that usage. Applicant is not disadvantaged by the use of proper terminology.

4. Claims 20, 22, 24-30, 35 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefinite for the reasons advanced above, that the language of the claims is incorrect, cannot be understood by the person of ordinary skill in the art, and fails to set forth the metes and bounds of the claimed invention. It is not clear what the claims require; what the metes and bounds thereof are. In claim 30, it is not clear whether "secondary diol" is improperly broader than the "2,4-pentane diol" term from claim 20, or recites an additional ingredient beyond it. It might appear from the specification that "2,4-pentane diol" should be used in claim 30. The term

"segment" as used lack proper factual basis. The amount of the segment part of the polymer does not make sense. In claim 36, it is not clear if the language requires "2,4-pentane diol" both be present and be a specific secondary diol which is optional in claim 35. These remain exemplary, although it is noted that improvements have been made.

5. Claims 20, 22, 24-30, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler '296 in view of Manzara et al. '521, Manser '199, and Gomez et al. '037.

Zeigler teaches the basic idea of the claimed invention, an air bag system with a gas generating composition therein that comprises an oxidizer of ammonium nitrate, e.g., a fuel of HMX or RDX, and an energetic binder that may be GAP. Not only is this taught generally, but claim 12, e.g., directly to this was cancelled in this reissue of the original patent. Manzara et al., Manser, and Gomez et al. all teach further regarding GAP polymers, including that functionality may be 2, molecular weights may be varied, that GAP may be both primary or secondary in hydroxyl functionality, and that aromatic isocyanates (Manser, col. 6, line 19) including diphenylmethane diisocyanate (Manzara et al. col. 13, lines 24-30) are suitable chain extension agents. Variation of specific notoriously well known ingredients or amounts would have been obvious to one of ordinary skill in the art. It is well settled that optimizing a result effective variable is well within the expected ability of a person or ordinary skill in the subject art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

6. Claims 20, 22, 24-30, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finck et al. '171, in view of Wardle '613, Biddle et al. '737, and Menke et al. '168 and '661.

Finck et al. '171 teach in col. 1, line 29- col. 2, line 8, the provision of air bag safety devices with composite gas generating compositions, which included GAP reacted with polyisocyanate as the binder and ammonium nitrate oxidizer. This is essentially all that is required by claim 20, as

amended, in view of the "optional" nature of the pentane diol, as broadly construed. Further, in the first paragraph of col. 2, the use of thermoplastic binders as in view of Wardle '613 is taught. At the bottom of col. 2 of Wardle '613, forming polymers from respective amorphous and crystalline blocks via isocyanate linking moieties is taught. This is further set forth at col. 3, lines 45-60, and that TDI, an aromatic isocyanate, is the preferred linking isocyanate, col. 8, lines 13-17. Although AMMO and BAMO, azido block forming monomers are taught, there is no direct teaching of such block polymer with a GAP block. However, Biddle et al. '737, teaches similar thermoplastic block elastomers, and GAP may form the amorphous or soft block, at col. 6, line 33. Menke et al. '168 and '661 further suggest the combination of GAP/isocyanate binders, with ammonium nitrate oxidizer, and use as gas generators. Thus, while it is not clear what the claims require, it would appear that the limitations thereof are obvious in view of the prior art. To the extent appropriate, variation of specific well known ingredients or amounts, as being result effective variables, would have been obvious as set forth in the case law of the above art rejection.

7. Once the language is cleared up, it is deemed that proper and clear claims with aromatic diisocyanate, hydroxy terminated GAP and "2,4-pentane diol" would be free of the prior art.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Manser '153 is cumulative to Wardle '613.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning either this or an earlier communication from the Examiner should be directed to Examiner Edward A. Miller at (703) 306-4163. Examiner Miller may normally be reached Monday-Thursday, from 10 AM to 7 PM.

If attempts to reach Examiner Miller by telephone are unsuccessful, his supervisor Mr. Carone can be reached at (703) 306-4198. The Group fax number is (703) 305-7687.

If there is no answer, or for any inquiry of a general nature or relating to the application status, please call the Group receptionist at (703) 308-1113.

Miller/em
January 13, 2003

EDWARD A. MILLER
PRIMARY EXAMINER